

STATUS OF THE NAME AESCULUS FLAVA SOLANDER  
(HIPPOCASTANACEAE)

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The name for the yellow buckeye, *Aesculus octandra* Marshall (1785), has been in general use since publication of Robinson and Fernald's seventh edition of *Gray's New Manual of Botany* (1908). Earlier, the name *A. flava* Aiton (1789) had been in general use for this tree of the southern Appalachian Mountains of the eastern United States. More recently, it has been shown that the name *A. flava* Sol. was effectively published in 1778 and has priority as the oldest valid name for this well-known tree.

The yellow buckeye of the eastern United States, a well-known tree and a characteristic component of the mixed mesophytic forests of the southern Appalachians (Hardin, 1957), has been known as either *Aesculus flava* Aiton or *A. octandra* Marshall for nearly two centuries. Aiton's *A. flava* (1789) was used fairly consistently until publication of Robinson and Fernald's seventh edition of *Gray's New Manual of Botany* (1908), when *A. octandra* Marshall (1785) was accepted as the earlier valid name because of its priority of four years over *A. flava* Aiton. Since that time, Marshall's name has been universally accepted for this North American tree as the earliest valid epithet (Hardin, 1957). More recently, a note published in Bean's *Trees and Shrubs Hardy in the British Isles* (1970) explained that the name *A. flava*, as pointed out by B. L. Burtt, of the Royal Botanic Garden, Edinburgh, was originally published by Daniel Solander in *Catalogus Arborum et Fruticum in Horto Edinensi Crescentium* (Anonymous, 1778). Solander's name precedes *A. octandra* Marshall by seven years, and Aiton's *A. flava* by eleven. Our aim is both to include additional details to confirm Burtt's observations that *A. flava* Sol. is the older and correct name, and to alert botanists, foresters, and others who might easily have overlooked the horticultural reference in Bean (1970).

With respect to the name *Aesculus flava* Aiton, it is well known that Aiton's *Hortus Kewensis* (1789) was in preparation for some twenty years; the text was written largely by Jonas Dryander, who had succeeded Daniel Solander as librarian for Sir Joseph Banks after Solander died in 1782. Also, Dryander is known to have used manuscript material written earlier by Solander in preparing the descriptions for *Hortus Kewensis*, but without reference to the source of the information. Dryander may indeed have consulted Solander's original manuscript notes, but the wording in Aiton (1789, p. 494) on *A. flava* was

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altered: *Ae. foliolis quinis, corollae laminis cordato-subrotundis; unquibus calyce duplo longioribus*. (Compare FIGURE 1 and the description of *A. flava* below.)

The catalogue with the name *Aesculus flava* Sol. published at Edinburgh anonymously in 1778 was (*vide* Morton, 1986) issued under the direction of Dr. John Hope (1725–1786), at that time Regius Keeper of the Edinburgh Botanic Garden; however, no author's or editor's name appears on the title page of that publication. In the Edinburgh *Catalogus* five new species in the genera *Aesculus* L. (one), *Andromeda* L. (one), *Cornus* L. (two), and *Crataegus* L. (one) can be clearly attributed to Solander as the publishing author (Burt in Morton, 1986). Of these, only *Aesculus flava* has been adequately typified. Following a brief Latin diagnosis for each of the names, we find the identifying letter "S" standing for Solander, the publishing author, as explained at the end of the catalogue.

In the recent edition of his *Checklist of United States Trees (Native and Naturalized)* (1979), Elbert Little rejected *Aesculus flava* Sol. with the argument (pers. comm. to Hardin, September, 1979) that the name had no publishing author. On the other hand, *Index Kewensis* (Suppl. XV, 1974) listed the name *A. flava* Sol. ex [Hope]. However, it is clear that the name *flava* was effectively and validly published in 1778 in the Edinburgh *Catalogus*, which was published anonymously, and that Solander, not Hope, was the author of the name. The name *A. flava* Sol., listed by Bean (1970), Spongberg (1975), and Kartesz and Kartesz (1980), is correct as cited, although the full bibliographic citation should be *A. flava* Sol. in Anonymous, Cat. Arb. Frut. Horto Edin. Cresc. 1778, 3. 1778.

## HISTORICAL BACKGROUND

Matters relating to the history and typification of the name *Aesculus flava* are of concern because we have only Solander's original manuscript notes and the brief description published in the Edinburgh *Catalogus*. We are without a clue as to the source of the material seen by Solander, except that it was cultivated and growing in England. Specimens of wild material were not available to him. What was the source of the original North American material? Was it really the tree we know as yellow buckeye, or another species? There are no definitive answers for these questions. Original herbarium voucher specimens of this tree from the wild collected in this period have not been located and probably do not exist. We do know that in Solander's time material of this species was already growing in private gardens in England, and that it was offered by at least one nursery in the London area in 1774.

Aiton (1789) reported that *Aesculus flava* was in cultivation by Mr. John Greening (d. 1770) in 1764, the earliest recorded date of introduction, and that it was from North Carolina. We also have evidence that yellow buckeye was in cultivation in the Vineyard Nursery of Messrs. Lewis Kennedy and James Lee at Hammersmith, London. In their *Catalogue of Plants and Seeds*, issued in 1774, the third entry under *Aesculus* (p. 3) is " $\beta$  Flo. flavo, Yellow Horse Chestnut." This clearly confirms that Lee was indeed growing the yellow buckeye (*A. flava*) in his nursery in 1774. It is possible that Solander, a friend of

James Lee, saw flowering specimens of *A. flava* growing in Kennedy and Lee's Vineyard Nursery at Hammersmith.

James Lee (1715–1795), nurseryman, author, and correspondent, although not a well-known figure in botanical circles, made noteworthy contributions both to horticulture and to botany (Willson, 1961).

In his early years after coming to London, Lee was employed as a gardener first at Syon, near Kew, and later, by the Duke of Argyle, at Whitton, near Hounslow. About 1745 James Lee entered into a partnership with Lewis Kennedy (1721–1782) in a nursery called "The Vineyard" at Hammersmith, now the site of Olympia, the great London exhibition hall. Lee devoted the remainder of his life to his nursery and to introducing rare plants from different parts of the world. In the preface to *Hortus Kewensis*, Aiton (1789) mentioned that Lee had supplied a list of plants introduced by the Duke of Argyle at Whitton. At that time the Vineyard Nursery maintained a collector in America, one at the Cape of Good Hope, and another in South America (Loudon, 1838). The genus *Leea* Royen ex L. of the Vitaceae was named in honor of James Lee.

#### INTRODUCTION OF AESCULUS FLAVA FROM NORTH AMERICA

While we are unable to pinpoint the original source of *Aesculus flava* in British gardens, we know that seeds of North American plants were regularly being sent to England from about 1735 onward. John Bartram (1699–1777), of Philadelphia, sent no less than 145 shipments of seeds and plants to correspondents in England between 1735 and 1769 (Berkeley & Berkeley, 1982). Bartram also sent many shipments of plants to his English Quaker friend, Peter Collinson, of Mill Hill, near London, who in turn distributed much material to his horticultural friends and to Daniel Solander, the botanist, for identification (Earnest, 1940; Darlington, 1967).

John Bartram (Earnest, 1940; Darlington, 1967; Berkeley & Berkeley, 1982) visited Pittsburgh in the fall of 1761 and met Col. Henry Bouquet from Ohio, receiving from him plant material from the Ohio River valley. Yellow buckeye (*Aesculus flava*) and Ohio buckeye (*A. glabra* Willd.) could have been included in this material. In the fall of 1762, Bartram was on an extended trip to the interior of South Carolina (Wateree and Congaree rivers), to western North Carolina, and to southwestern Virginia (Yadkin and New rivers, Natural Bridge, Luray Caverns, Staunton, and the Shenandoah Valley). On this excursion he collected fruits of three different "horse chestnuts" from southwestern Virginia that were later identified by Solander as *A. hippocastanum* L., *A. pavia* L., and *A. media*, the last "not taken notice of by Dr. Linnaeus" (Berkeley & Berkeley, 1982, p. 349). The one called *A. hippocastanum* was undoubtedly *A. glabra*, which is interesting because *A. glabra* is unknown in that area today, so far as we know. Those called *A. pavia* and *A. media*, initially identified without flowers, were probably variations of *A. flava*, which could have been named by Solander after flowering material was available in England.

Another possible source of yellow-buckeye material from the North Carolina mountains was W. V. Turner, an Indian agent who sent plants to Sir Joseph Banks (Joseph Ewan, pers. comm. to F. G. Meyer, September, 1980).

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flava

AESCULUS folij quinis, ~~ovatis~~  
~~laxi~~, ~~calycibus~~ ovatis unguibus duplo  
 brevior, lamini cordato-subrotundis,  
 staminibus ~~involucris~~ inflexis.

Fig. pict.

racemi laxi, subpenduli rachis &  
 pedunculis virentes

calyx ~~viridi~~ e viridi indide flavescen.  
 ovatis, laxus, unguibus duplo brevior

Corolla delute sulphurea. Laminae

subrotunda, subcordata, undulata;  
 ius interiore, sursum inclinata.

Filamenta plerumque septem, subulata,  
 apice sursum inclinata, petalis bre-

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vicia, inaequalia, flavoanthe

Stylus flavicans, subulatus in floribus  
 viridis, staminibus paulo brevior, cum  
 illis inclinatus

lobis virides.

Folia pinnata.

Ob. Flores nullo ferunt glutine.

FIGURE 1. Solander's original manuscript slips describing *Aesculus flava*.

#### TYPIFICATION OF *AESCULUS FLAVA*

A copy of Solander's original manuscript slips (nos. 339-341) with a description of *Aesculus flava* was kindly supplied by the librarian of the Department of Botany at the British Museum (Natural History). Thus, for purposes of typification, it has been possible to use Solander's original description and to publish more than 200 years later his complete manuscript notes for the first time (see FIGURE 1). This is important, since the brief protologus of *A. flava* published in the *Edinburgh Catalogus* included only the first four lines



FIGURE 2. Neotype of *Aesculus flava* Sol.

from Solander's original manuscript (our translation of Solander's protologue: "calyx ovate, half the length of the upper petal claws, blade cordate-subrotund, stamens curved") and therefore was incomplete and is inadequate for typification. These details allow a positive identification only of a buckeye—*A. flava* or *A. sylvatica* Bartram. In his complete text, however, Solander describes the yellow flowers, the relative length of calyx and upper petal claws, the extremely dimorphic petals, and the included stamens of *A. flava/sylvatica*, details that are adequate for typification. In addition, these characters definitely eliminate *A. pavia* and *A. glabra* from consideration. *Aesculus glabra* was described by Willdenow in 1809. The differences between *A. flava* and *A. sylvatica* are mainly in habit (tree vs. shrub) and in rather subtle features of pubescence and size of floral parts (Hardin, 1957).

Marshall's (1785) description of *Aesculus octandra* was only slightly more diagnostic, for he did indicate that it was a tree. His common name "New River horse chestnut" would most likely have come from John Bartram (E. Berkeley, pers. comm. to J. Hardin, February, 1982), in reference to the material brought back from his trip of 1762 to the New River in southwestern Virginia.

Unfortunately, there is no specimen of *Aesculus flava* that was collected or annotated by Solander. The earliest possibly appropriate material in the British Museum (Natural History) was collected by James Lee at the Vineyard Nursery of Messrs. Kennedy and Lee and has the number "74" (interpreted as 1774) on the herbarium label. This specimen (see FIGURE 2), although somewhat damaged after more than two centuries, contains several leaves and a short portion of a poorly preserved inflorescence with a few flowers. We consider it to be authentic *A. flava* Sol. The leaflets are somewhat narrower

than normal, but well within the range of variation of the species. There are a few poorly preserved stipitate glands at the base of the calyx, which definitely identify the specimen as *A. flava* rather than *A. sylvatica*. There is no evidence of *A. sylvatica* in England prior to William Bartram's discovery and description of 1791. Bean (1970) indicates its cultivation (probably as *A. neglecta* Lindley) in Europe in 1826.

We hereby designate the James Lee specimen (BM), the earliest known documented material, as the neotype of *Aesculus flava* Sol.

#### DESCRIPTION OF *AESCULUS FLAVA* SOLANDER

***Aesculus flava*** Sol. *in* Anonymous, *Cat. Arb. Frut. Horto Edin. Cresc.* 1778, 3. 1778. NEOTYPE: ex hort. Lee, [17]74 (BM).

*Aesculus octandra* Marshall, *Arbust. Am.* 4. 1785. TYPE: not seen.

*Aesculus lutea* Wangenh. *Schriften Ges. Naturf. Freunde Berlin* 8: 135. 1788. TYPE: not seen.

Additional synonymy is given in Hardin (1957).

Translation of Solander's holographic description of *Aesculus flava* (FIGURE 1):

- flava    AESCULUS leaflets five; calyx ovate, half the length of the upper petal claws; blade cordate-subrotund; stamens incurved.  
*Raceme* lax, subpendulous. *Rachis* and *peduncles* green.  
*Calyx* [turning] from green to dull yellowish, ovate, open, half the length of the upper petal claws.  
*Corolla* pale sulphur yellow. *Blade* subrotund, subcordate, undulate; the two inner ones inclined upward.  
*Filaments* generally seven, subulate, apices inclined upward, shorter than the petals, unequal, turning yellow.  
*Style* yellow, subulate (in flowers seen, little shorter than the stamens, with those inclined).  
*Petioles* green.  
*Leaves* flat.  
 Observation. Flowers without copious secretion.

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